



---

Parallelisms in the Morphophonemics of Several Micronesian Languages

Author(s): Byron W. Bender

Source: *Oceanic Linguistics*, Vol. 12, No. 1/2, Papers of the First International Conference on Comparative Austronesian Linguistics, 1974: Oceanic (Summer - Winter, 1973), pp. 455-477

Published by: University of Hawai'i Press

Stable URL: <http://www.jstor.org/stable/3622863>

Accessed: 30/09/2009 15:20

---

Your use of the JSTOR archive indicates your acceptance of JSTOR's Terms and Conditions of Use, available at <http://www.jstor.org/page/info/about/policies/terms.jsp>. JSTOR's Terms and Conditions of Use provides, in part, that unless you have obtained prior permission, you may not download an entire issue of a journal or multiple copies of articles, and you may use content in the JSTOR archive only for your personal, non-commercial use.

Please contact the publisher regarding any further use of this work. Publisher contact information may be obtained at <http://www.jstor.org/action/showPublisher?publisherCode=uhp>.

Each copy of any part of a JSTOR transmission must contain the same copyright notice that appears on the screen or printed page of such transmission.

JSTOR is a not-for-profit organization founded in 1995 to build trusted digital archives for scholarship. We work with the scholarly community to preserve their work and the materials they rely upon, and to build a common research platform that promotes the discovery and use of these resources. For more information about JSTOR, please contact [support@jstor.org](mailto:support@jstor.org).



University of Hawai'i Press is collaborating with JSTOR to digitize, preserve and extend access to *Oceanic Linguistics*.

<http://www.jstor.org>

*PARALLELISMS IN THE MORPHO-  
PHONEMICS OF SEVERAL MICRONESIAN  
LANGUAGES<sup>1</sup>*

0. INTRODUCTION. There are some major alternation patterns in Micronesian languages that are vestiges of sound changes participated in by many Oceanic languages--especially those resulting from the dropping of final consonants and vowels from unsuffixed stems. The original material is preserved in suffixed forms, as before the transitive increment of Marshallese verbs:

gargar <sup>2</sup>	'be feeding'
garij(iy)	'bite something'
har	'imitate others'
harin ~ hariy	'mock someone'
jag	'cry'
jagit(iy)	'cry for someone'
kalehleh	'upside down'
kaleher(ey)	'drive something into the ground'
kankan	'be taut'
kanek(ey)	'stretch something'
ttaɿ	'grope'
taɿim(iy)	'reach for something'
yatyat	'smell'
yateg(ey)	'smell something'

Stem vowels are also preserved before the possessive suffixes of inalienable nouns:

giy	'tooth'
giyid	'our eating aids'
yém	'house'
yiméd <sup>3</sup>	'our shelter'
yat	'name'
yetad <sup>4</sup>	'our names'
wah	'canoe'
wahad	'our vehicle(s)'

This paper will focus on alternation patterns of less widespread distribution within the Austronesian family for their possible diagnostic value in subgrouping. Sohn (1971) first called attention to the fact that there are two alternation patterns involving the raising of low vowels that are shared by more than one Micronesian language, noting two alternations in Woleaian that parallel patterns earlier identified in Marshallese by Bender (1969). Kee-dong Lee (personal communication) later found one of these in Kusaiean, and Goodenough (personal communication) and Nathan (1974) have noted vestiges of the other in Trukese and Nauruan, respectively.

These two patterns and several others are detailed here in the interests of learning whether they are shared by other languages in or outside Micronesia. Included will be observations on the continuing force or productivity of the rule responsible for the alternation. Each alternation will be discussed in some detail for one language and to a lesser extent for known parallel occurrences in other languages. It is hoped that this admittedly sketchy treatment will cause readers to bring to our attention details of the occurrences of parallel alternations in other languages they may have knowledge of.

1. *Low vowel alternating with mid vowel as a result of assimilation to a high vowel.* This alternation can be found in several dozen forms such as *mákmék* 'arrowroot, starch' and *jayjéy* 'machete, sword' which we assume to be the products of redupli-

cation even though the unreduplicated counterparts do not now exist. In addition, a number of stative verbs have reduplicated intensive forms that occur only postpositionally within a noun phrase:

Ye-bat wah yeń.		That canoe is slow.
It-slow canoe that.		
*Ye-bat-bét wah yeń.		
Qe-lew key wah bat yeń?		Do you see that slow
You-see Q canoe slow that?		canoe?
Qe-lew key wah bat-bét yeń?		Do you see that very slow
You-see Q canoe slow-very that?		canoe?

Following are other examples of statives and their postpositional intensive forms:

<i>Stative</i>	<i>Postpositional</i>	<i>Gloss</i>
deyaw	deyawyéw	pretty
kkag	kkagkéğ	sharp
kawat	kawatwét	be a thief
mekaj	mekajkéj	fast
meram	meramém	be light
meray	merayéy	dry
metal	metaltél	smooth
meyaw	meyawyéw	bitter
mmán	mmánmén	good
nnaw	nnawnéw	tasty
peran	peranrén	brave
pewtak	pewtakték	torn
piwal	piwalwél	smelly, cowardly
piyaw	piyawyéw	be chilly
riyab	riyabyéb	be a liar

This same alternation appears in some distributive forms which are regularly produced by reduplication.

gaj	'fragrant'	ggajgéj	'pervasively fragrant'
kejak	'be funny	kkejakjék	'make jokes'
piyaw	'be chilly'	ppiyawyéw	'sensitive to chills'
rawal	'return'	rrawalwél	'rotate, revolve'
tayag	'productive of coconut sap'	ttayagyég	'overflowing with sap'

The examples of this alternation that have been presented thus far contain no obvious explanatory clues, especially when it is noted that there are a larger number of reduplicated forms with low vowels that do not exhibit the alternation, as for example:

diylah	'nail'	ddiylahlah	'have many nails'
gertak	'snore'	ggertaktak	'habitually snore'
jëgaw	'odor of fish'	jjëgawgaw	'permeated with fish odor'
jekab	'checkered'	jjekabkab	'checkered all over'
kewnah	'sneak away'	kkewnahnah	'habitually sneak away'
kewpay	'coat'	kkewpaypay	'habitually wear a coat'
kewtak	'rise'	kkewtaktak	'continually rising'
merah	'light (in weight)'	merahrah	'quite light (postposition)'
mayan'	'to smart'	mayan'yan'	'smart greatly (postposition)'
rran	'dirty'	rranran	'very dirty (postposition)'

It is among unsuffixed verbs exhibiting this alternation and their transitive counterparts that we find the basis for an explanation:

dam'dém	'lick'	dam'ij(iy)	'lick something'
dap'dép	'hold on'	dapij(iy)	'hold onto something'
day'déy	'twist and pull hair'	dayit(iy)	'wrap around something'
jawj'éw	'splash water'	jawin(iy)	'splash water on someone/thing'
pawp'éw	'coil up'	pawin(iy)	
		~ pawit(iy)	'bind something'
rahr'éh	'clean up'	rakij(iy)	'clean an area'

raqréq	'scoop up'	raqij(iy)	'scratch someone/thing'
taytéy	'wind up, roll up'	tayik(iy)	'wind something up'
yawyéw	'lash with sennit'	yawit(iy)	'lash something'

Note that the stem vowel preserved in the transitive forms is the high vowel *i*. This leads us to derive the reduplicated forms from base forms identical to the transitive forms (less the *-iy* increments):

base form:	dayit	rakij	tayik
loss of final <i>C</i> :	dayi	raki	tayi
reduplication:	dayi-dayi	raki-raki	tayi-tayi
assimilation: <sup>5</sup>	dayi-deyi	raki-reki	tayi-teyi
apocope:	day-déy	rak-rék	tay-téy
(consonant reduction:) <sup>6</sup>	---	rah-réh	---
surface form:	daydéy	rahréh	taytéy

Similar histories are posited for the stative-postpositional and distributive forms cited earlier which show this alternation. That is, *deyaw* and *deyawyéw* would be derived from *deyawí*, and *gaj* and *ggajgéj* from *gají*. Here, however, there seems to be no synchronic evidence for the final high vowels posited in the reconstructed forms.

The assimilation rule would seem to require that a low vowel have high vowels both preceding and following (with consonants intervening) in order to be raised to the mid quality; the low vowel in the first portion of the reduplicated forms (and in the transitive forms) remains low since it is only followed, not preceded, by a high vowel. There are, however, isolated examples of low vowels assimilating to only a following high vowel: several inalienable nouns have independent forms with low vowels which alternate with the high-mid vowel when the following stem vowel is preserved before possessive suffixes:

pay	'arm, hand'	péyin	'his arm'
raw	'scrotum'	réwin	'his scrotum'

The stem which serves as possessive classifier for children and other prized possessions has dialectal variants showing this alternation:

najin	'his child	néjin	'his child
	(E dialect)'		(W dialect)'

The morphophonemics of possessed inalienable nouns suggest the positing of a high vowel in the first person singular possessive suffix (*-hi*) to account for the behavior of immediately preceding stem vowels:

	<i>Base</i>	<i>Gloss</i>	<i>1st per. sg.</i>	<i>3rd per. sg.</i>
<i>Long a-stems:</i>	waha qeńaha	vehicle duty	wahéh (<waha-hi) qeńahéh (<qeńaha-hi)	wahan qeńahan
<i>Short a-stems:</i>	jema qeńa	father catch	jemáh (<jema-hi) qeńah (<qeńa-hi)	jeman qeńan
<i>e-stems:</i>	jine yíme	mother house	jinéh (<jine-hi) yiméh (<yíme-hi)	jinen yimén

Note that only the long *a*-stems exhibit the alternation under discussion. The *e*-stems furnish additional evidence for positing the high vowel in the underlying suffix (the alternation that raises *e* to *é* in the first person being that referred to in the first paragraph of §4.).

The rule responsible for this alternation would seem to have little or no remaining active force in Marshallese today for the following reasons:

- a) in many cases there is no synchronic evidence for the high vowels that need to be posited for its operation,
- b) in a few cases there is counterevidence for the high vowels:

yatyét	'pack, be impounded'	yatey	'pack something'
kawajwéj	'use a blanket'	kawjek(ey) ~	kawjik(ey) 'use a certain blanket',

- c) almost no recent loans exhibit the alternation, the only one recorded being *jawałwél*, the postpositional form of *jawqł* 'salt(y)', and this form varies with *jawałwał*,
- d) loans generally exhibit nonalternating reduplication patterns instead, and,
- e) there are surface forms that seemingly violate it, such as *likajik* 'pistol', and *Minamiy*, a personal name borrowed from Japanese, although its application may have always been limited to penultimate syllables reckoned one syllable further to the right, before the general application of prejunctural apocope.

The details of an essentially parallel alternation in Woleaian have been discussed by Sohn (1971). The main difference for Woleaian is that underlying final and medial prejunctural vowels--before the juncture posited between the two identical parts of reduplicated forms--tend not to be lost as in Marshallese but only weakened. The medial low vowels thus preserved are still subject to participation in this alternation, and the final high ones--for whose counterparts in Marshallese there is no longer any evidence (e.g., Wol. *-mu* '2nd per. sg. poss.' vs. Marsh. *-m̃*)--continue to trigger the alternation.

The following forms from Quackenbush (1968) give some idea of the distribution of this alternation within the Trukic continuum, being typical of other reduplicated forms in his data that have (or had) the necessary conditions for the alternation--a low vowel followed by a high vowel, as in the Sonsorol forms:

Gloss:	'plait'	'plant'	'soft'
Sonsorol:	faθiféθi	wariwéri	mīcagīcag
Ulithi:	faséfas <sup>7</sup>	waliwél	macégcég
Woleai:	fayiféyi	waliwél	mašagišeg
Puluwat:	fayifayi	waliwal	métawutów
Mortlocks:	féwiféwi	waliwel	
		~ weliwel	
Truk:	--	wénīwén	--



From these data we would assume at least with respect to reduplicated forms that the alternation is to be found generally in Sonsorol and Woleai, at least sometimes in Ulithi and the Mortlocks, but never in Puluwat or Truk, although Trukese (and in some cases Ulithi and the Mortlocks) do seem to show assimilation of height in both vowels.

Recalling that in Marshallese it sometimes seemed necessary to have high vowels on both sides of a low vowel for assimilation to take place, sometimes only on the right, the situation in Trukese where both vowels in reduplicated forms have become mid suggests that a Trukese rule of the latter sort may have been extended to reduplicated forms. That the one-sided rule has been active in Trukese noun morphology is shown by examples such as *masa-yi* > *mesey* 'my eye', *masa-mu* > *mosom* 'your eye', *masa-ni* > *mesen* 'eye of', but *masa-na* > *masan* 'his eye', and also by *pawi-ni* > *péwin* 'arm of', but *pawi* > *paaw*<sup>8</sup> 'arm'. This leaves Puluwat as the one part of the Truk continuum with seemingly no evidence for the operation of either sort of height assimilation, since the comparable Puluwat forms for 'arm of' and 'eye of' are *payin* and *mehán*, respectively.

The alternation is not found in reduplicated forms in Ponapean (Rehg, personal communication) or in Mokilese (Harrison, personal communication), and although Harrison (1973) posits an 'i\_i' rule with respect to medial vowels in forms such as *sikesik* 'converse' as compared with *sikoa* 'talk about something', the final vowel of *sikoa* seems to have had a mid-vowel origin, and the i\_i rule does not apply to another set of forms such as the intransitive-transitive pair *pinapin*, *pina* 'cover'. Regh points out that the latter situation is also true for Ponapean, where for example *kisa* 'bit' is reduplicated as *kisakis*. Both languages do have assimilation to following high vowels in the noun morphology. Harrison also cites the intransitive-transitive pair *joaijoai*, *jaim* 'sharpen' as evidence for raising in both parts of the reduplicated form paralleling that for Trukese above. Regh further points out that at least for Ponapean it seems to be only high vowels immediately before word boundary that raise preceding vowels, so that from the base form *aŋi* (independent form *ahŋ*) are derived *aŋin* 'windy' (< *aŋi-na*) in which the initial *a* is not

raised even though followed immediately by *i*, and also *en* 'wind of' (<*an*-*ni*) in which raising does take place.

Nathan (1974, and personal communication) indicates that there is evidence for the assimilation of low vowels to high as a synchronic rule in Nauruan, as for example *itugá* 'above', *itugé-i-o* 'above me'. It is my impression that in Gilbertese there is no alternation of any type we have been discussing here.

Kee-dong Lee (personal communication) reports that there are a number of intransitive-transitive verb pairs in Kusaiean in which the intransitive member exhibits the sort of vowel height alternation under discussion, and in which the transitive member has a high stem vowel:

<i>Gloss</i>	<i>Intransitive</i>	<i>Transitive</i>	<i>Base</i>
to spear	fa:kfə:k <sup>9</sup>	fa:kɪ:s	fa:hkɪs-i
to scoop	la:flə:f	la:fɪ:s	la:hfis-i
to hammer	pa:tpə:t	pa:tɪ:k	pa:htik-i
to cover	ʂa:ʂə:	ʂa:we:	ʂa:hwi-y-i
to tie	a:yə: <sup>10</sup>	a:wi:	ha:hwi-y-i

Lee's base forms are fairly abstract and include a transitive suffix *-i* which later gets deleted. The preceding consonant also gets deleted in the derivation of the intransitive forms, wherein a key rule is one that raises a low vowel between high ones.

2. *Low vowel alternating with mid vowel as a result of dissimilation from a following low vowel.* This alternation has been detailed for Marshallese by Bender (1969) and for Woleaian by Sohn (1971). The Marshallese situation can be reviewed briefly as follows:

- a) a number of short a-stem inalienable nouns have base forms in which both vowels are low. The second of these is dropped from independent forms, but when it remains in suffixed forms, the first one dissimilates from it to a mid vowel:

<i>Base</i>	<i>Gloss</i>	<i>Independent</i>	<i>3rd per. sg. poss.</i>
maja	eye	maj	mejan
yata	name	yat	yetan
bara	head	bar	beran
da <sup>h</sup> ma	forehead	da <sup>h</sup> m	de <sup>h</sup> man
la <sup>h</sup> ga	canoe roller	la <sup>h</sup> g	le <sup>h</sup> gan

- b) prefixes with underlying *a*, such as the causative *ka-* and the negative *ja-*, have it dissimilated to *e* before stems in which the first vowel is *a*:

řij	'awake'	kařij	'awaken'
qéyét	'octopus'	kaqéyét	'catch octopuses'
lap	'great'	kellaplap	'exaggerate'
bat	'slow'	kebatey	'make it slow'
kiley	'recognize'	jakiley	'not recognize'
ter	'greedy'	jater	'not greedy'
wwan	'industrious'	jewwan	'lazy'
kkar	'suitable'	jekkar	'unsuitable'

- c) surface vowels inserted before or between initial consonants of double-consonant stems are generally copies of the first vowel of the stem, except when low vowels are involved, in which case dissimilation takes place:

<i>Base</i>	<i>Gloss</i>	<i>Surface Form</i> ( <i>W dialect</i> )	<i>Surface Form</i> ( <i>E dialect</i> )
lliw	angry	yilliw	liliw
ttér	run	yéttér	tétér
bbej	swollen	yebbej	bebej
nnaw	tasty	yennaw	nenaw
m <sup>h</sup> man	good	yem <sup>h</sup> man	mem <sup>h</sup> man

- d) many Proto-Oceanic reconstructions with a sequence of low vowels have reflexes which

do not exhibit alternation but in which the first vowel is mid:

*masaki(t)	metak	'pain'			
*masala	metal	'smooth'	*madama	meram	'light'
*nsakaRu	tekay	'reef'	*waka	wekar	'root'
*tama	jema-	'father'	*qapaRa	hayeray	'shoulder'

- e) loan words in which the source language has a sequence of low vowels are borrowed with the sequence mid, low:

<i>Japanese:</i>	tama	temah	'lightbulb'
	kama	kemah	'kettle'
	baka yaroo	bekayrew	'stupid'
	sara shiko	jerajkew	'bleach'
	namaiki	nemahyikiy	'impertinent'
<i>Neo-Melanesian:</i>	kanaka	keñahkeh	'native'
<i>German:</i>	Tabak	tebak	'cigar'
<i>Gilbertese:</i>	Marakei Atoll	Merakey	'Marshall Islands
		Merakéy	place names'
		Merrakiy	

As the last set of examples shows, the rule responsible for this alternation is still productive, and surface sequences violating it are not to be found. The same is true for Woleaian as described by Sohn, where with fewer vowels lost through apocope there are longer sequences of low vowels that seem to indicate right-to-left application of the rule, as is suggested by *hayeray* in Marshallese above.

Ward Goodenough (personal communication) has directed my attention to what seem to be a few survivals of low-vowel dissimilation in just two words in dialects of Lagoon Trukese other than that of Romonum:<sup>11</sup>

*Base Gloss Independent Romonum(3 sg.) Other Dialects(3 sg.)*

masa	eye	maas <sup>12</sup>	masan	mesan
sama	father	saam	saman	seman

but compare:

sapa	cheek	saap	sapan	sapan
caṃa	forehead	caam	caṃan	caṃan

Turning to the Quackenbush (1968) materials to check the distribution of low-vowel dissimilation elsewhere in the Trukic continuum, we find the following:

Gloss:	'eye of'	'father of'	'cheek of'	'shoulder'	'doorway'
Sonsorol:	matari	tamari	tapari	yafal	gatom
Ulithi:	matal	tamal	tapal	yafar	gatom
Woleai:	metál	temál	tepál	yefar	gétam
Puluwat:	mehán	hámán	-hepán	yefar	yaham
Mortlocks:(mesen) <sup>13</sup>	saman	(sapen)	--		yasam
Truk:	(mesen)	(semen)	(sapen)	yafar	yasam

Of the above, Woleai seems to be the only area with consistent dissimilation, while the data for Puluwat are mixed, as are those (not shown here) for Satawal, an island between the two.

Rehg (personal communication) reports that there is no evidence for low-vowel dissimilation in Pona-pean. Harrison (personal communication) cites the suffixed forms of *ad* 'name' (base *ada*--cognate with Marshallese *yata* above) and *maj* 'eye' in Mokilese, which have raised stem vowels (e.g., *oadoa-sa* 'our (dual incl.) names' and *mija-sa* 'our (dual incl.) eyes') but notes that examples such as these are countered by possessive classifiers such as *war* 'canoe' (base *wara*) which do not dissimilate (e.g., *wara-sa* 'our (dual incl.) canoe(s)'). This evidence is not yet well understood, but at most could count only as vestigial remains of a dissimilatory process. Nathan (1974) points out that there is evidence for low-vowel dissimilation in the historical development of Nauruan (e.g., *\*mata* > *-mee* but *\*mate* > *-máá*) but not as a synchronic rule. There

seems to be no evidence for low-vowel dissimilation in Gilbertese.

3. *Long vowel alternating with short vowel in the first syllable of nouns: "compensatory lengthening".* This phenomenon has been known for Trukese and Ponapean at least since the CIMA investigations of the late forties when Dyen (1949:423, 1965) and Garvin (n.d.) noted that independent forms of words such as Trukese bases *masa* and *sama* (whose inflected forms all have short vowels in the first syllable) have independent forms with long vowels: *maas* 'eye' and *saam* 'father', respectively. Early process-type analyses (Bender 1971:447) viewed this lengthening as a very late rule that said in effect that any noun having become monosyllabic through apocope of its final vowel needed to have that syllable lengthened compensatorily to fill a requirement that all nouns have at least two syllables when pronounced in isolation, but Irwin Howard (personal communication) noted as early as 1969 that one could explain more phenomena by placing the rule earlier in derivations, before final vowel apocope, while nouns subject to apocope still had two syllables, lengthening the first of the two. This earlier placement together with a modification of the vowel assimilation rule so that short low vowels assimilate to following high vowels in backness, roundness, and height, while long vowels assimilate only in backness and roundness, makes it possible to explain for example the different vowel qualities in *sáát* and *setin*:

<i>gloss:</i>	<i>sea</i>	<i>sea of</i>
<i>base form:</i>	<i>sati</i>	<i>sati-ni</i>
<i>lengthening:</i>	<i>saati</i>	--
<i>assimilation:</i>	<i>sááti</i>	<i>seti-ni</i>
<i>apocope:</i>	<i>sáát</i>	<i>setin</i>

Kenneth Reh (personal communication) finds that parallel derivations for Ponapean explain forms like *laang* 'sky', *lengin* 'sky of', and *langin* 'cloudy'. When Bender 1971 was written it appeared that compensatory lengthening extended throughout the Trukic continuum (data from Quackenbush 1968):

<i>Gloss</i>	<i>Sonsorol</i>	<i>Ulithi</i>	<i>Woleai</i>	<i>Puluwat</i>	<i>Mortlocks</i>	<i>Truk</i>
sea	taat	tááθ	taat	háát	sáát	sáát
sea of	tatiri	táθel	tatil	hátin	setin	setin

and included Ponapean, but was not found outside Trukic or Ponapeic. This distribution together with lexicostatistical evidence were the primary reasons for tentatively positing a Trukic-Ponapeic subgroup within Micronesian.

Now, however, several additional items of information make it doubtful that this criterion can be related to this grouping. First of all, Harrison (personal communication) reports that compensatory lengthening is not to be found in Mokilese. (His investigation is revealing that Mokilese is sufficiently different from Ponapean to justify describing it in its own terms and not as a dialect of Ponapean, but its cognate percentage of over 60 per cent and near intelligibility with Ponapean still point toward its inclusion within a Ponapeic subgroup.)

More importantly, Goodenough (personal communication) reports compensatory lengthening for Gilbertese two-syllable noun bases when the noun is neither preceded by the article *te* nor suffixed--when it is used in an indefinite, nonspecific or generic sense: *maata* 'eye(s), face(s) (general)', *te-mata* 'eye(s), face(s) (specific)', *mata-na* 'his eyes', *te-mata-ni* 'the eye(s) of'; *aai* 'fire (general)', *te-ai* 'fire (specific)'. He notes that this has sometimes been mistaken as a plural, partly through the assumption that the *te* forms were only singular as over against an English type of generic plural, and partly in confusion with first syllable reduplication of verbs (including verbal adjectives built on nominal bases) to derive the Gilbertese counterparts of what have been called 'distributives' in Marshallese, in which an element of plurality can often be seen, with a pluralization of action or (in the case of those built on nominal bases as in the following example) an abundance of items: *ikabata* 'a kind of fish', *iikabata* 'be abounding in *ikabata*'. This finding not only removes compensatory lengthening from being the exclusive property of Trukic and Ponapeic, but it also supports Howard's analysis for Trukese (and

Rehg's for Ponapean), since it provides two-syllable bases lengthened on the surface. At the same time, since it is found in a language that does not have final-vowel apocope, it decreases the likelihood that compensatory lengthening may have developed independently in various languages in response to the loss of final vowels. The most that could now be said along these lines is that if compensatory lengthening is really anticipatory lengthening--in anticipation of the loss of final vowels in two-syllable nouns--then what we have in Gilbertese is a stage in which vowels have been lengthened in anticipation of a loss still to come. An intermediate stage may be that found in Sonsorol which combines compensatory lengthening and final-vowel devoicing.

To what extent lengthening in Kusaiean parallels that which has been described for Trukese, Ponapean, and Gilbertese is difficult to say, since all monosyllables are long on the surface, and the second or final syllable of longer forms is often lengthened too, as can be seen in the following portion of the paradigm for 'eye':

me:t	'eye (independent form)'	maʔa:k	'my eye'
maʔa:	'eye (impersonal form)'	maʔa:l	'his eye'
maʔa:	'eye of'		

Kee-dong Lee (personal communication) cites also the intransitive-transitive verb pair for 'to dent' *lupɔ:lɔp*, *lupɔ:s* and the noun *lo:p* 'a dent', which he derives from a base *lipaʔi*, as possible evidence for compensatory lengthening. We must conclude that as matters now stand, the phenomenon cannot be ruled out for Kusaiean. The same would seem to be true of low-vowel dissimilation.

Nathan (1974) reports only sporadic lengthening for Nauruan, but we cannot rule out the possibility that the vowel prefixes which generally occur with unsuffixed nouns, paralleling as they do the *te* article of Gilbertese, prevent the necessary conditions for compensatory lengthening as we have known it in the other languages from arising. Put another way, if the compensatory lengthening to be found in Micronesian languages had a common origin, we cannot rule out on the basis of our present knowledge the possibility that Nauruan shared in this origin.



4. *Other alternations.* There are several related alternations in Marshallese between mid and high vowels on the one hand, and the derived high-mid surface vowel on the other, that will not be detailed here since there are no known parallels in the languages of Micronesia. It will simply be noted in passing that two of these alternations, for which the metathesis of final vowel and consonant is a possible explanation (Bender 1969:89) are reminiscent of the same sort of metathesis that has been reported for Rotuman (Biggs, 1965) and Kwara'ae (Sohn, personal communication). One can speculate that since all three instances preserve information that would otherwise be lost through final vowel deletion (probably occasioned prosodically), they may be peculiarly Oceanic responses to a universal principle prohibiting undue loss of information through leveling.

Another alternation that will be mentioned only in passing since it is not known to occur in related languages is that between oral and nasal consonants in Ponapean--the nasalization of the first member of what would otherwise be a geminate voiceless oral stop, e.g., *sompíhr* 'airplane' (< *sopw* 'ship', *píhr* 'fly') (Fischer 1965 and Regh, personal communication).

A minor alternation involved in the noun morphology of Trukese (Dyen 1965:35) and Marshallese is the assimilation of an unvelarized *m* in stems to the velarized *m̐* of the second person singular possessive suffix:

	<i>Trukese</i>	<i>Marshallese</i>
'my father'	semey	jemáh
'your father'	so <sup>h</sup> móm	jemám
'his father'	saman	jeman
'my beverage'		liméh
'your beverage'		limém
'his beverage'		limen

Note that the *h* of the Marshallese first-person suffix also triggers the alternation. Reliable data on the beverage classifier for Trukese<sup>14</sup> and on this

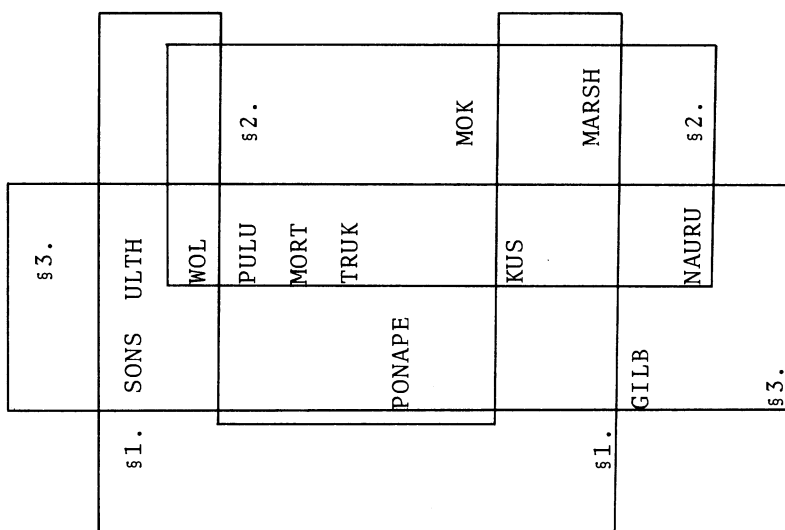
alternation in general in other Micronesian languages were not available at the time of writing.

5. *Summary.* At this point we are beset with two major problems. One concerns the reliability and exhaustiveness of our data. We hope that our situation will have improved in this respect by the close of the conference through the help of the participants. The other concerns the weighting of these few alternations we have been discussing for their historical significance--their interpretation.

On this latter score, the following minimal statement can be made: the more a process responsible for an alternation can be said to be natural or unmarked, the less the historical significance that can be attached to its appearance in two different languages. Conversely, the more marked and inexplicable a process, the greater the probable historical significance.

The assimilation of consonants discussed in §4. and the assimilation of vowels in §1. would seem to belong near the unmarked end of the scale. Although there is some question as to the relation between the one-sided vowel assimilation and the two-sided variety, assuming for the moment that the relation is a fairly direct one, the latter variety that is so regulated as to result in alternating reduplicated forms would seem to be the more marked of the two. The vowel dissimilation of §2. would seem to be the most marked, for although dissimilation of liquids and sibilants is fairly common, that of the most vowel-like of vowels is quite unprecedented, to our knowledge. And although, as our discussion has shown, the lengthening of §3. is also less than completely understood, it would seem to belong somewhere in-between on a scale of markedness.

Finally, we arrange here diagrammatically groupings of the languages we have been discussing around the three alternations with most possible historical significance, singling out with respect to §1. the alternation preserved in reduplicated forms rather than height assimilation of any form.



- §1. height assimilation resulting in alternating reduplicated forms
- §2. low vowel dissimilation
- §3. compensatory lengthening

6. *Postscript.* The hope expressed at the close of the introduction to this paper was not overwhelmingly fulfilled at the Conference or in the ensuing months preceding submission of this manuscript for publication in the *Proceedings*. Concerning low-vowel dissimilation such as discussed in §2., Fred W. Householder (personal communication) cites a dissimilation of *a* to *æ* to be found in Azerbaijani, and Lynch (1974:160-61) discusses a suffix in Lenakel of the shape *-aan* before which stem-final *a*'s dissimilate to *e*. It should be noted, however, that there is no low-vowel dissimilation in Lenakel so general as to prohibit all sequences of *aCa*, and that the suffix involved has one or two other peculiarities.

Susanne Hancock (personal communication) reports an active low-vowel dissimilation rule in Mortlockese, much as in Marshallese, with *aCa* sequences becoming *éCa* everywhere except initially (where

Marshallese has *haCa* in comparable forms and the rule does not apply either). Thus for the forms cited in the antepenultimate and penultimate paragraphs of §2., she finds in Mortlockese independent forms *maas*, *saam*, *saap*, *shaamw*, but *mésan*, *séman*, *sépan*, and *shémwan* identically for both the 3 sg. and construct forms ('his eye' and 'eye of', etc.), the two being always identical as in Marshallese. She finds considerable variation between this "pure" Mortlockese pattern and one paralleling the Romonum dialect among her sources, most of whom have lived for years in the Truk Lagoon. On the basis of her evidence I have included Mortlockese within the rectangle for §2. in §5.

John Thayer Jensen (personal communication) in response to my query as to how Yapese--not generally considered a nuclear Micronesian language--stacks up against the alternations discussed, has replied that although there are vowel raising and lowering processes, there are none that seem similar to the ones here described and which could not easily be described as innovations in Yapese. Yapese does have compensatory lengthening, but it differs in that it applies to verbs and adjectives as well as to nouns.

Concerning the alternation in reduplicated forms discussed in §1., Fred Householder observes that it is not overly uncommon, and cites English words of the *flimflam* sort. However, these seem quite different from the grammatically functioning reduplication of Austronesian languages, and constitute a type of sound symbolism with a uniting theme of vacillation (*dillydally*, a *dillar* a *dollar*, *shillyshally*, *wishywashy*, *fiddlefaddle*) of sound (*pitterpatter*, *pingpong*, *singsong*, *ticktock*, *tictac*) or motion and resulting form (*flipflop*, *hippityhoppity*, *teetertotter*, *seesaw*, *zigzag*, *rickrack*) or formlessness (*knickknack*, *mishmash*, *wickywacky*, *flimflam*, *riffraff*). Only *tiptop* does not seem to fit the pattern. JoAnn Flora (personal communication) has called my attention to the Identity Constraint developed by Wilbur (1973), a universal tendency to keep the two parts of reduplicated forms identical even if it means suspending the normal operation of phonological rules. There thus seems to be consid-

erable support for the marked nature of reduplicated forms manifesting alternation.

UNIVERSITY OF HAWAII

#### NOTES

<sup>1</sup>I have tried to acknowledge my direct sources for data and insights throughout the paper, but state here in blanket fashion my indebtedness to Ward Goodenough for information on Gilbertese and Trukese, Susanne Hancock on Mortlockese, Sheldon Harrison on Mokilese, John Thayer Jensen on Yapese, Kee-dong Lee on Kusaiean, Geoffrey Nathan on Nauruan, Kenneth Rehg on Ponapean, Ho-min Sohn on Woleaian and Ulithian, and Hiroshi Sugita on Trukese. I have been in debt to Edward Quackenbush since 1967 for basic data on the various languages of the Trukic continuum. I have profited from a number of general discussions with George Grace and Ward Goodenough, and especially on compensatory lengthening with Irwin Howard and Kenneth Rehg, but I claim ultimate responsibility for the statements made and conclusions reached in this paper.

<sup>2</sup>The unsuffixed forms are often referred to as intransitive, but this is something of a misnomer, since they may take general, nonspecific objects. The transcription used for Marshallese is the same one used in Bender 1969, except that *é* has been substituted for *ê*. It may be summarized briefly as follows: three vowels differing among themselves only along the height dimension (*i*, high; *e*, mid; and *a*, low) are front next to unmarked (phonetically palatalized) consonants (*y*; *p*, *j* [tʲ]; *m*, *n*; *l*, *d* [rʲ]), backed (but unrounded) next to velarized consonants (*h*; *b*, *t*, *k*; *ḥ*, *ḡ*, *g* [ŋ]; *ṭ*, *r*), and backed and rounded next to rounded consonants (*w*; *q* [kʷ]; *ṇ*, *ḡ* [ŋʷ]; *ṽ*, *ṽ*). Vowels between consonants from different of these three sets, as a result of the counter influences of the consonants, may be perceived as breaking, or as of an intermediate quality. A fourth vowel (*é*) of a secondary or derived height between high and mid results from the alternation referred to in the first paragraph of §4.

<sup>3</sup>The alternation of the first vowel is that discussed in §4.

<sup>4</sup>The alternation of the first vowel is that discussed in §2.

<sup>5</sup>Although the alternation under discussion here is between *a* and *é* on the surface, it is between *a* and *e* more basically, with *e* becoming *é* together with apocope as part of the alternation of §4.

<sup>6</sup>*k* and *h* alternate sporadically, as do *q* and *w*.

<sup>7</sup>This form may be exceptional for Ulithian. Sohn (1969) shows that *a*-raising between high vowels is regular (*wubel* 'chest of' (< *wuba-li*)). When a high vowel follows but does not precede, only the quality of the intervening liquid is affected (*waxal* 'vein of' (< *waxa-li*)).

<sup>8</sup>The lengthening of the vowel is discussed in §3.

<sup>9</sup>The surface vowel system for Kusaiean shown here has four heights, and front, back unrounded, and back rounded vowels at each height: high: *i*, *ɨ*, *u*; high-mid: *e*, *ə*, *o*; mid: *ɛ*, *ʌ*, *ɔ*; low: *æ*, *a*, *ɔ̃*. Velarized consonants are marked with a single acute diacritic, and labialized consonants with a dieresis. Lee's abstract underlying forms contain just two vowels, *i* and *a*, but many more velarized and labialized consonants than are needed for the surface transcription.

<sup>10</sup>This form is probably cognate with Marshallese *yayyéw* 'lash with sennit' cited in §1. Note that the height raised to by the rule mentioned below in Kusaiean, that of the *ə* of the second syllable in this form, parallels the final output in Marshallese, where there are also four surface heights. For other derivations in Kusaiean a rule in which a low vowel is raised by a following high vowel is also required, and this latter rule raises to the lower-mid height, again paralleling Marshallese (see note 5.).

<sup>11</sup>I am thankful to Hiroshi Sugita for the data below, since I did not make notes of the earlier conversation with Good-enough.

<sup>12</sup>Lengthening of the vowels in these independent forms is discussed in §3.

<sup>13</sup>These forms in parentheses cannot be used as evidence for low-vowel dissimilation, since presumably their stem vowels have been raised by the high vowel in the underlying construct suffix *-ni*.

<sup>14</sup>Hiroshi Sugita reports that some of the Trukese speakers he has worked with do not velarize the *m* in the stem for 'father', and some variation in this respect is also to be found in the same stem among Marshallese speakers.

#### REFERENCES

- Bender, Byron W. 1969. Vowel Dissimilation in Marshallese. University of Hawaii Working Papers in Linguistics, Vol. 1, No. 1.
- \_\_\_\_\_. 1971. Micronesian languages. In: Current Trends in Linguistics, vol. 8, ed. by Thomas A. Sebeok. The Hague, Mouton & Co.
- Biggs, Bruce. 1965. Direct and indirect inheritance in Rotuman. *Lingua* 14:383-415.
- Dyen, Isidore. 1949. On the history of the Trukese vowels. *Language* 25:420-436.
- \_\_\_\_\_. 1965. A sketch of Trukese grammar. (Essay, 4) New Haven, American Oriental Society.
- Fischer, John L. 1965. The stylistic significance of consonantal sandhi in Trukese and Ponapean. *American Anthropologist* 67:1495-1502.
- Garvin, Paul L. n.d. A linguistic report on Ponape. (unpublished ms.) Coordinated Investigation of Micronesian Anthropology report No. 2.
- Harrison, Sheldon P. 1973. Reduplication in Micronesian languages. Paper presented to the First International Conference on Comparative Austro-nesian Linguistics, Honolulu, Hawaii, January 2-7, 1974.
- Lynch, John Dominic. 1974. Lenakel phonology. Ph.D. dissertation, University of Hawaii.

- Nathan, Geoffrey S. 1974. Nauruan in the Austronesian Language Family. Paper presented to the First International Conference on Comparative Austronesian Linguistics, Honolulu, Hawaii, January 2-7, 1974.
- Quackenbush, Edward Miller. 1968. From Sonsorol to Truk: a dialect chain. Ph.D. dissertation, University of Michigan.
- Sohn, Ho-min. 1969. An outline of Ulithian grammar. Ph.D. dissertation, University of Hawaii.
- \_\_\_\_\_. 1971. *a*-raising in Woleaian. University of Hawaii Working Papers in Linguistics, Vol. 3, No. 8.
- Wilbur, Ronnie Bring. 1973. The phonology of reduplication. (Mimeographed.) Indiana University Linguistics Club, Bloomington, Indiana.